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THE ACQUISITION OF MAYAN MORPHOSYNTAX

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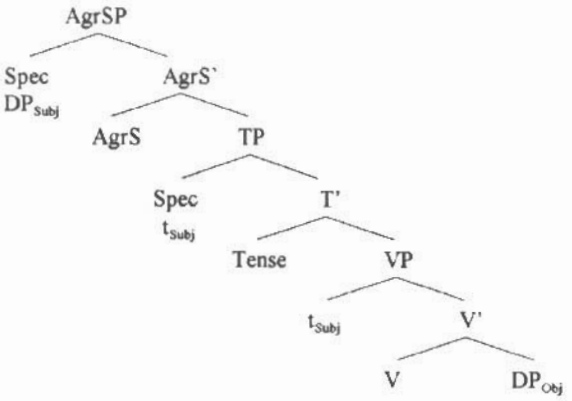
Abstract: This paper assesses predictions for the acquisition of Mayan verbal inflections derived from structural, comparative and metrical theories. The structuralist theory of Wexler (1998) fails to predict K'iche' children's use of the language's agreement morphology and existential verb. A comparison of verbal inflection across the Mayan languages successfully predicts the children's early use of the status suffixes on verbs, but fails to predict the relative acquisition of the ergative and absolutive agreement affixes. Demuth's metrical theory (1994) is the most successful of these three models in predicting the course of language development in K'iche'. It is the only model that can explain why children would break morphemes along syllable boundaries as well as combine separate inflections into a single unit of production

Over the past decade linguists have rediscovered the theoretical significance of morphology. Languages commonly employ a combination of syntax and morphology to express basic grammatical relations such as subject and object. Languages may use word order to distinguish between subjects and objects, but languages also employ case markers on nominal arguments and agreement morphology on verbs to signal these contrasts. English uses all three systems to some degree. Although it relies primarily on word order, English maintains a rudimentary case system on pronouns as well as a rudimentary agreement system on present tense verbs. Since the systems of word order, case and agreement all work together to mark the contrast between grammatical arguments, it is tempting to try and devise a framework that ties all three systems together. The tree structure in (1) illustrates one approach for English

(1) An exploded inflectional structure for English (after Chomsky 1995:60)



Radford (1990), Wexler (1994) and many other investigators have suggested various ways of applying this structural framework to language acquisition. Wexler (1998) proposes that children learning English cannot consistently check all the syntactic features of the subject. The result is that they sometimes use verbs without tense and agreement features, as in the examples in (2).

(2) Examples of root infinitives from English
Dis go right here (Adam 3;3)
Ianner play mine. (Charlie 2;5)

The main advantage of this approach over previous analyses of morpheme acquisition is that it ties the morphology to syntactic structure and allows investigators to predict how children's syntactic development will interact with their use of morphological inflections. I provide a list of some of these predicted interactions in (3).

(3) Predicted interactions between the acquisition syntax and morphology

1. Children will occasionally use infinitive verb forms in simple sentences
2. Children will occasionally omit auxiliary and copular verbs that only carry tense features
3. Children will inflect auxiliary verbs in moved positions, e.g. yes-no questions, negation
4. Children will use pronouns with the correct case more often with inflected verbs

5. Children learning languages with overt verb movement (e.g., French, German) will inflect moved verbs
6. Children acquiring languages with rich inflection (e.g., Italian, Spanish) will not use root infinitives since they only need to check the subject's D-features once.

I have attempted to extend this model to the Mayan languages together with Penny Brown, Lourdes de León and Barbara Pfeiler. The Mayan language family contains some 30 different languages with an historical depth that is roughly similar to that of the Romance languages (Kaufman 1990). The Mayan languages fall into four main subdivisions: a. Huastekan, b. Yukatekan, c. Western and d. Eastern. The first three branches are located primarily in Mexico while the Eastern branch is located in Guatemala. Our approach to the acquisition of morphosyntax is unique in that we are comparing the structure and acquisition of inflections within a family of related languages. The comparative approach adds a new dimension to this research in that we can use the history of the morphosyntactic changes within the Mayan language family to predict areas of vulnerability for acquisition. An ideal linguistic theory would provide an account of how morphosyntactic systems change over time as well as how children acquire the morphosyntax of current languages. The differences between languages may be used to predict how morphology interacts with syntax in acquistion.

Mayan languages are well known for possessing a linguistically interesting array of distinct morphosyntactic types. The languages have a generally agglutinative morphology with overt agreement for subject, object, indirect object and instruments. The languages display the canonical pro-drop characteristics of languages with a rich verbal morphology. Mayan languages have an ergative type of agreement with a variety of ergative 'splits' along the dimensions of person, aspect and clause type. Many Mayan languages also display idiosyncratic constraints in their agreement systems. The morphosyntax of any single Mayan language posses many challenges for current syntactic theory, while a comparative study of the all the languages not only reveals fundamental limitations in syntactic theory, but also points the way to a better understanding of the way morphology integrates with syntax (c.f. Pye 2001b).

The Yukatek Maya language best illustrates the challenge to current morphosyntactic theory. Yukatek verbs have the inflectional template shown in (4). I provide some examples of Yukatek verbs in (5). A structural approach to Yukatek leads to a tree structure like that shown in (6).

(4) Yukatek verb structure

Aspect (Ergative) (Adverb) Root + Status + Absolutive + Plural

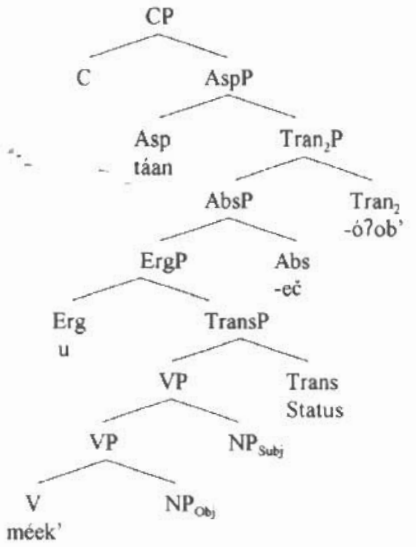
(5) Examples of Yukatek verb inflection (Barbara Pfeiler, pc)

a. Incompletive Intransitive
k aw ʔok-ol
INCOMP 2ERG enter-STATUS
'You enter.'

b. Completive Intransitive
maʔ (h) ʔok-Ø-eč-iʔ
NEG (COMP) enter-STATUS-2ABS-NEG
'You did not come in.'

c. Incompletive Transitive
maʔ táan u+ka méek'-eč-óʔob'-iʔ
NEG PROG 3ERG+again hug-2ABS-3PL-NEG
'They are not hugging you again.'

(6) Structural configuration for Yukatek



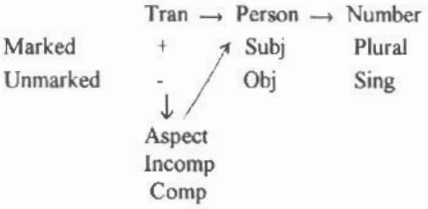
The structure in (6) does not account for the interactions that take place in Yukatek between transitivity and the projection of a plural inflection and the use of distinct aspectual prefixes for transitive and intransitive verbs in the completive

aspect. Example (5a) poses the greatest challenge for structural accounts in that it illustrates the phenomenon of split ergativity found in Yukatek and some other Mayan languages. Intransitive verbs in ergative languages should appear with the absolutive form of agreement, but in Yukatek, intransitive verbs in the incompletive aspect take ergative agreement markers. More generally, the morphosyntactic interactions shown in (7) occur in the Mayan language family.

(7) Morphosyntactic interactions in Mayan (c.f. Larsen & Norman 1979)
1. ergative agreement (verb transitivity interacts with agreement) – all Mayan languages
2. transitivity interacts with aspect – Yukatek, Western Mayan languages
3. aspect interacts with agreement (split ergativity) – Yukatek
4. person interacts with agreement (split ergativity) – Mocho
5. focus interacts with agreement (split ergativity) – Mam
6. focus interacts with word order – Most Mayan languages
7. agreement interacts with number distinctions – Yukatek, Western Mayan languages

Linguists have noted such interactions for years (c.f., Silverstein 1976), but little attention has been given to their significance for structural approaches to morphosyntax. While the tree structure in (6) provides a description of the interaction between the syntax and morphology of Yukatek, it does not provide a means of constraining interactions between functional projections. The structural approach only allows for simple interactions in the form of Spec-Head or Complement-Head relations. The Head of a functional projection may 'select' a particular type of Complement, but the theory provides no constraint on the type of Complement being selected. The theory derives the Complement to Tense through evidence from word order rather than through a theory of how tense interacts with other functional categories. The model provides no means of accounting for distant interactions such as the Yukatek interaction between ergative agreement and number or between aspect and agreement. The structural model actually predicts such distant interactions should not exist. These interactions may be described more directly by means of a feature hierarchy such as the one in (8).

(8) Mayan feature matrix



In this paper I'll focus on the predictions these models make for the acquisition of Mayan morphosyntax. Since the Mayan languages fit the classic pro-drop description, the structural model would make the predictions shown in (9). Next to these, we can make predictions based on the comparative evidence within Mayan as shown in (10).

(9) Structuralist predictions for the acquisition of Mayan morphosyntax (Wexler 1998)

1. Children will not use root infinitives since they only need to check the subject's (and object's) D-features once.
2. Children will not omit copular verbs that only carry tense features
3. Children will inflect verbs in moved positions, e.g. yes-no questions, negation
4. Children will not omit case markers on nominal arguments
5. Children will observe constraints on moved constituents

(10) Comparativist predictions for the acquisition of Mayan morphosyntax (Pye 2001b)

1. Children will acquire transitivity inflections first
2. Children will acquire aspect inflections next
3. Children will acquire the ergative affixes before the absolutive affixes
4. Children will first restrict ergative use to verbs in the incompletive aspect
5. Children will use ergative singular forms before using the separate plural inflections

Finally, for the sake of completeness, we should include acquisition predictions from metrical accounts of language development (Demuth 1994; Gerken 1991; Pye 1983; Slobin 1973). These models would make the predictions shown in (11).

(11) Metrical predictions (Demuth 1994; Gerken 1991; Pye 1983; Slobin 1973)

1. Children will produce suffixes before prefixes
2. Children will omit pretonic syllables (Mayan languages place stress on the final syllable)
3. Children will omit determiners, auxiliaries and copular verbs since they usually have weak stress.

K'iche'

I will begin by exploring how each of these models fares in predicting the development of morphosyntax in the Eastern Mayan language K'iche' since that is the acquisition story I know best. K'iche' verbs have the inflectional template shown in (12).

(12) Aspect + Absolutive + (Ergative) + Root + Derivation + Status

The ergative prefixes mark agreement with the subjects of transitive verbs while the absolutive prefixes mark agreement with the direct objects of transitive verbs and the subjects of intransitive verbs. The aspect markers distinguish between incompletive and completive aspect as well as the imperative mood. The status suffixes are the most complex part of the verbal inflectional system. They run against the agglutinative grain of the language in that they simultaneously mark aspect, transitivity, and phrasal position. I provide examples of K'iche' verbs in (13).

(13) K'iche' examples

Intransitive verbs	Transitive verbs
a. katpetik k-at-pet-ik INCOMP-2ABS-come-STATUS 'You are coming.'	b. xatriloh x-at-r-il-oh COMP-2ABS-3ERG-see-STATUS 'S/he saw you.'
c. ma xb'e: taj ma x-Ø-b'e: taj NEG COMP-3ABS-go NEG 'S/he did not come.'	d. ma katoj taj ma k-Ø-a-toj taj NEG INCOMP-3ABS-2ERG-pay NEG 'You do not pay him/her.'

I explored the shortcomings of the structuralist model in predicting the acquisition of K'iche' morphosyntax in previous presentations (Pye 2001a). I summarize these shortcomings in (14).

(14) Shortcomings of the structuralist model (Pye 2001a)

Prediction	Outcome
A. K'iche' children will always use fully inflected verb forms in simple sentences	NO
B. K'iche' children will use fully inflected verb forms in negative contexts	NO
C. K'iche' children will use the positional verb *k'o:lik* in the same proportion of obligatory contexts as they use the aspect and agreement inflections on verbs	NO

The comparativist approach provides many specific predictions for testing. The first prediction is that children will acquire the transitivity distinctions first. I base this prediction on the fact that all the other distinctions in aspect and person marking are tied to verb transitivity. We can, thus, begin by examining the acquisition of the K'iche' status suffixes. The K'iche' status suffixes distinguish four distinct verb features. First, they mark the difference between transitive and intransitive verb stems (Kaufman 1990), c.f., examples (13a and b). Second, the status suffixes mark a difference between root and derived transitive verb stems. Nouns, adjectives, intransitive verbs and positional stems can all be converted into transitive verbs. While these derivations require different morphological processes, they result in derived transitive verb stems that require a distinct status suffix. Third, the status suffixes mark a difference in what Kaufman (1978) describes as 'verb status'. Verb status covers differences in mood, aspect and verb incorporation. Mood differences include the distinction between indicative and imperative moods. Verb status also includes the difference between the perfect and nonperfect (incompletive and completive) aspects. Finally, the status suffixes indicate whether the verb occurs in the middle or end of a phonological phrase. The distinction between phrase-medial and phrase-final verb forms only occurs for the intransitive and root transitive status suffixes (see examples 13c and d). The derived transitive status suffix appears on the verb regardless of its position in the phonological phrase. I will only discuss the acquisition of the status distinctions between transitive and intransitive verbs here (c.f., Pye 2001c for a full analysis). I provide a table that summarizes the forms and functions of the K'iche' status suffixes in (15), c.f. Kaufman (1990). Parentheses indicate that the form only appears when the verb occurs in phrase-final position.

(15) K'iche' status suffix inflectional paradigm (c.f., Kaufman 1990)

Aspectual Categories	Root Transitive	Derived Transitive	Intransitive
Plain:	(-oh)	-Vj	(-ik)
Dependent:	-a?*	-Vj	-a/(-oq)
Perfect:	-o:m	-Vm	-inaq

* -a? is used with verbs whose root vowel is /i e a/; -o? when the root vowel is /o/; and -u? when the root vowel is /u/.

Much to my surprise, K'iche' children use verbs with status suffix morphemes from the beginning. I provide early examples of the children's productions with status suffixes in (16). (The asterisks in all child language samples mark obligatory morphemes that were absent in the child's production.)

(16) a. Al Tiya:n (2;1.7: Intransitive verb)
ay, ay, ek.
= *x-Ø/b'e-ik
*ASP-3A/go-STATUS
'Oh, oh, it went.'

b. Al Cha:y (2;9.3: Root transitive verb)
tijo ch̓a?
= *k-Ø-*u/tij-oh cha?
*ASP-3A-*3E/eat-STATUS say
'He eats it, he says.'

c. A Carlos (3;0.14: Derived transitive verb)
kub'ij
= k-Ø-u/b'i?-j
ASP-3A-3E/name-STATUS
'He says it.'

I provide further data on the children's use of the status suffixes in Table 1. This table shows the extent to which the children use status suffixes in their obligatory contexts. For this analysis, I only included intransitive and root transitive status suffixes in phrase-final contexts since these contexts provide the clearest evidence for the status suffixes with these verbs. I did not include dependent uses of these verbs since the dependent forms of the root transitive and intransitive verbs are similar in phrase-medial contexts and I am not confident that my transcriptions record the necessary detail to distinguish these uses. I counted all

uses of the derived transitive status suffixes in both phrase-medial and phrase-final contexts. Table 1 displays both the number of tokens the children produced as well as the proportion of obligatory contexts in which the children used each status suffix.

Table 1. Number and proportion of status suffix use on root transitive (RTV), derived transitive (DTV) and intransitive (IV) verbs

Al Tiyaan

	RTV		DTV		IV	
Sample	no.	p.	no.	p.	no.	p.
1-3	4	.8	5	.83	15	.71
4-6	7	1.0	6	.86	39	.87
7-9	2	.67	5	1.0	51	.91
10-12	8	.8	7	.88	38	.97
13-15	12	.92	35	1.0	74	1.0
16-18						

Al Chaay

	RTV		DTV		IV	
	no.	p.	no.	p.	no.	p.
	7	.47	44	.97	17	.71
	11	.73	76	.96	33	.92
	12	.8	48	.90	36	.90
	36	.88	77	.97	36	.95
	33	.73	65	1.0	56	.94
	20	.91	70	.94	43	.88

A Carlos

	RTV		DTV		IV	
Sample	no.	p.	no.	p.	no.	p.
1-3	29	.97	9	1.0	74	.95
4-6	20	.87	20	1.0	50	.98
7-9	50	.96	61	1.0	147	.99
10-12	23	1.0	45	1.0	127	.98
13-15	28	.96	66	.97	140	.98
16-18	22	.96	31	1.0	66	.98

The children supplied status suffixes in more than seventy percent of obligatory contexts in all but a couple of sessions. Al Tiyaan and Al Chaay exhibit some difficulties with status suffixes on their root transitive and intransitive verbs in their first three samples; in the later samples they supply the status suffixes in over seventy percent of their obligatory contexts. A Carlos had evidently mastered the use of the status suffixes by the time I began recording his speech.

It is remarkable that the children exhibit high proportions of status suffix usage across the three different verb types. The children appear to use approximately twice as many status suffixes with derived transitive as with root transitive verbs, and three to four times as frequently with intransitive verbs. These discrepancies are primarily due to the restrictions I placed on counting the contexts for status suffixes. The children only used root transitive verbs in phrase-final

position in a minority of their utterances. Most of the time they added a verb particle or noun phrase after the root transitive verbs. In such contexts the status suffix can be omitted. In contrast, all uses of derived transitive verbs require the status suffix. This creates many more opportunities to observe the children's use of the derived transitive status suffix. The frequent use of status suffixes with intransitive verbs was more surprising. The children were much less likely to follow their intransitive verbs with particles or noun phrases. The varied contexts that occur with the children's verbs make it all the more remarkable that they show such high rates of status suffix use across all three verb types.

The children's mastery of the status suffixes contrasts sharply with their omission of the verb prefixes for aspect and agreement. Note that Al Tiyaan and Al Chaay omitted the aspect and agreement prefixes on their verbs in examples (16a and b). I provide data on the children's acquisition of these morphemes elsewhere (Pye 1991; 2001a). A Carlos was the only one of my three subjects who used verb aspect and agreement inflections with more than fifty percent of his verbs, and then only in his final language samples. Al Tiyaan and Al Chaay supplied aspect prefixes on less than ten percent of their verbs. The children's acquisition of the status suffixes appears to be well in advance of their acquisition of the other obligatory verbal inflections.

The K'iche' data supports the first comparativist prediction that children will acquire the transitivity distinctions quickly. The comparavist data suggests that the children should next acquire the aspect distinctions on verbs since these sometimes determine the forms of the agreement markers on verbs as in the case of the ergative split in Yukatek. While the early development of aspectual distinctions among the status suffixes offers partial support for this prediction, the delayed development of the aspectual prefixes in K'iche' provides even stronger counterevidence. The examples in (16a and b) are typical of the children's productions and show the omission of the aspectual prefixes in obligatory contexts. Table 2 provides acquisition data for the completive and incompletive prefixes.

Table 2. Number and proportion of incompletive and completive aspect use

	Al Tiyaan				Al Chaay				A Carlos			
	Incomp		Comp		Incomp		Comp		Incomp		Comp	
Sample	no.	p.	no.	p.	no.	p.	no.	p.	no.	p.	no.	p.
1-3	0	0	0	0	2	.02	1	.02	25	.24	2	.08
4-6	1	.02	0	0	5	.03	8	.10	19	16	6	11
7-9	8	.11	1	.04	2	.01	10	.10	59	.20	29	.19
10-12	18	.27	5	.12	14	.06	0	0	35	.19	21	.14
13-15	12	.11	10	.19	25	.12	11	.12	34	.16	28	.24
16-18					72	.35	22	.20	140	.63	77	.65

The contrast between the children's use of the status and aspect inflections couldn't be greater. The acquisition data undercut the prediction of early use of aspect inflections.

Ergative and Absolutive

The next question is whether there is any indication that K'iche' children use ergative agreement before absolutive agreement. I provide a list of the ergative and absolutive agreement forms for K'iche' in (17). There are some mundane housekeeping issues that we have to address before deciding this issue. Since the third singular absolutive marker is a zero morpheme, I have omitted it from all of my analyses. I have no way to tell if it is present or absent in any of the children's productions. Another difficulty is created by the resyllabification processes in K'iche'. When a prefix that ends in a consonant is place in front of a verb that begins with a vowel, the consonant shifts from the prefix to form a syllable with the verb root. I provide examples of this process in (18).

(17) K'iche' agreement prefixes

	Ergative		Absolutive
Person	pre-V	pre-C	
1	inw-	in-	in-
2	aw-	a-	at-
3	r-	u-	Ø-
4	q-	qa-	uj-
5	iw-	i-	ix-
6	k-	ki-	ee-

(18) Examples of resyllabification of agreement prefixes in K'iche'

a. cha|to|kik	b. kin|wi|loh
ch-at/ok-ik	k-Ø-inw/il-oh
IMP-2ABS/enter-STATUS	INCOMP-3ABS-1ERG/see-STATUS
'Enter!'	'I see him/her/it.'

Children commonly produce syllables rather than morphemes so I decided to only count a morpheme as used if it was produced in its entirety. While I haven't done any counts, my feeling is that the children produced vowel initial transitive verbs (e.g., *il* 'see', *esaj* 'take') more frequently than vowel initial intransitive verbs (e.g., *ok* 'enter', *oq'* 'cry'). If this turns out to be the case, my counting procedure would penalize the ergative agreement count more than the absolutive count. In any case, my count of the children's use of the ergative and absolutive subject prefixes appears in (19).

(19) Frequency and percentage presence of subject markers on K'iche' verbs

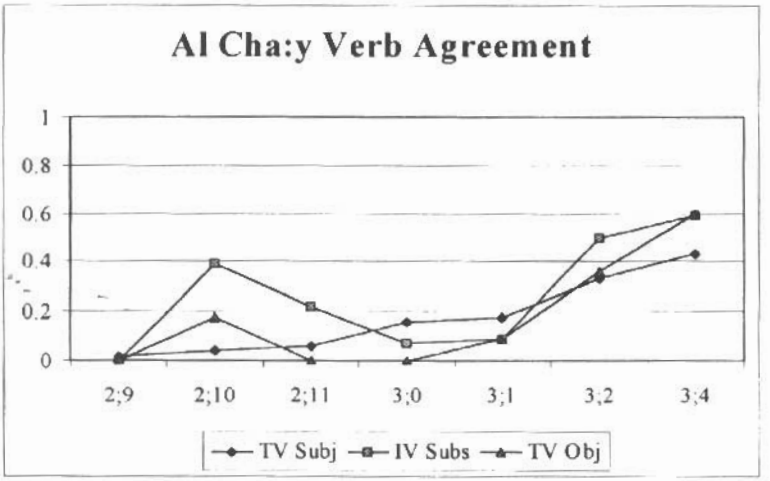
	Al Tiyaan				Al Chaay				A Carlos			
	IV		TV		IV		TV		IV		TV	
Session	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1-3	6	86	9	39	-	-	3	2	19	50	17	71
4-6	3	50	5	11	9	39	10	4	20	67	63	50
7-9	4	31	6	10	5	22	12	6	32	58	128	46
10-12	6	38	19	17	3	7	48	16	17	65	152	54
13-15	4	10	25	19	2	9	51	18	31	70	130	51
16-18	-	-	-	-	14	50	76	33	24	70	149	69
19-21	-	-	-	-	19	59	64	43	23	85	87	71

While the data in (19) is very uneven, it certainly does not support the prediction that children would produce the ergative subject agreement prefixes before the absolutive set. I don't think the way I counted the prefixes with vowel initial verbs materially affected this result. It looks as though K'iche' children acquire ergative and absolutive subject prefixes at about the same time.

The structuralist approach might predict that children will acquire functional projections that are lower more quickly than the projections that are higher. This approach would then predict that K'iche' children would acquire the ergative prefixes before they acquire the absolutive prefixes. A markedness approach would make the opposite prediction since the ergative prefixes are more marked than the absolutive prefixes in that they only mark agreement for the subjects of transitive verbs while the absolutive prefixes mark agreement for the subjects of intransitive verbs as well as the objects of transitive verbs. The comparativist approach that

I've followed so far would predict that children would acquire the ergative prefixes first since this set is the basis for the number distinction in many Mayan languages. The Mayan languages also commonly use separate ergative prefix sets to mark agreement for verbs that have vowel-initial and consonant-initial stems. The absolutive prefixes do not display this allomorphic contrast. An additional concern is the children's use of the absolutive prefixes to mark agreement with the subjects of intransitive verbs and objects of transitive verbs. These are logically two distinct functions, so we might expect the children to acquire the absolutive prefixes at different times for the transitive and intransitive verbs. Unfortunately, my three main K'iche' subjects did not produce many contexts for overt object marking. The best data I have on the development of agreement is for Al Chaay. Her results are shown in Figure 1.

Figure 1.



The acquisition data suggest that K'iche' children acquire the ergative and absolutive agreement markers at approximately the same period. The little data that I have for object agreement suggests that the children produce object agreement markers at the same rate as the subject agreement forms. These data do not support either the structuralist or the comparativist predictions.

I have found a few instances where K'iche' children combine features of the object agreement markers and the subject agreement markers into a single syllable. These examples are shown in (20). These examples suggest to me that the children

do not produce the subject and object agreement markers separately, but instead treat them as a single preverbal inflection. Neither structuralist or comparativist approaches predict this phenomenon.

(20) Examples of subject-object coalescence in K'iche'

a. Al Chaay (3;6)
jun patax kunt'opoh.
= jun patax k-in-u/t'op-o.
a duck INCOMP-1ABS-3ERG/poke-STATUS
"A duck is poking me."

b. A Luu? (4;0)
nuk'amo.
= *k-in-u/k'am-o.
INCOMP-1ABS-3ERG/take-STATUS
"It will take me."

Aspect and Agreement

I turn now to the interaction between and agreement. I tested this prediction by counting the number of absolutive subjects the children produced in completive and incompletive contexts. I relied upon the speech context to judge if the children were talking about a completed event. Thus, I included intransitive verbs where the children may have produced an absolutive agreement prefix, but not an aspect marker. The results are shown in (21).

(21) Number and percent absolutive agreement in incompletive and completive intransitive verbs

	Al Tiyaan				Al Chaay				A Carlos			
	Incomp		Comp		Incomp		Comp		Incomp		Comp	
Session	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1-3	2	50	0	0	0	0	0	0	15	40	2	67
4-6	1	20	1	33	1	4	2	28	18	75	5	71
7-9	4	40	0	0	2	15	1	20	11	48	14	78
10-12	6	54	3	43	8	26	2	33	14	67	3	75
13-15	13	31	4	80	1	6	0	0	10	48	5	100
16-18	-	-	-	-	3	18	5	62	12	80	8	100
19-21	-	-	-	-	19	59	-	-				

(21) Number and percent ergative agreement in incompletive and completive transitive verbs

	Al Tiyaan				Al Chaay				A Carlos			
	Incomp		Comp		Incomp		Comp		Incomp		Comp	
Session	No.	%	No	%	No.	%	No.	%	No.	%	No.	%
1-3	7	39	0	0	10	7	3	10	27	49	2	33
4-6	6	32	0	0	15	7	0	0	53	61	8	73
7-9	13	25	0	0	23	12	3	7	132	60	13	52
10-12	17	27	2	17	69	30	9	22	114	74	8	50
13-15	33	55	5	83	45	24	6	14	104	68	19	79
16-18	-	-	-	-	73	41	12	29	88	84	22	76

The children did not produce many overt absolutive subjects during the time I was recording their speech. The results from A Carlos are the most reliable; Al Tiya:n and Al Cha:y produced fewer than five tokens of verbs with absolutive subjects throughout most of the time I recorded their speech. I should perform the same analysis on the children's ergative agreement prefixes, but I ran out of time. The data do not definitively point to an interaction between the acquisition of aspect and agreement. Thus, I have to conclude for now that this comparativist prediction fails to find support in the K'iche' data.

I summarize the comparativist predictions I have examined in (22) along with my findings. The comparativist model does not fare much better than the structuralist model when tested against the K'iche' acquisition data. Such an outcome suggests that other factors play a role in determining when children reliably produce verbal inflections.

(22) Test of the comparativist model

Prediction	Outcome
A. Children will acquire transitivity inflections first	YES
B. Children will acquire aspect inflections next	NO
C. Children will acquire the ergative affixes before the absolutive affixes	NO
D. Children will restrict ergative use to verbs in the incompletive aspect	NO

The Metrical Model

We can now turn to the predictions from the metrical model to see how it fares against the K'iche' data. I provide a summary of its predictions and my findings in (23). The metrical model seems to be the only one of the three models that meets with a modicum of success. It is the only model that provides an explanation of why children would break morphemes along syllable boundaries as I

demonstrated in (18). It is also the only model that would predict anything like the coalescence of separate inflections into a single unit of production as shown in (20). Looking back at the Yukatek verb template in (4) suggests another way to test our three models. Yukatek places absolutive agreement and number agreement after the verb root whereas K'iche' puts absolutive agreement before the verb root. Depending on where stress falls in Yukatek verbs, the metrical model would predict a much different outcome for the acquisition of subject agreement in K'iche' and Yukatek. We will have to wait a little longer to discover how acquisition in Yukateck actually unfolds.

(23) Test of the metrical model (Pye 1983)

Prediction	Outcome
A. Children will produce suffixes before prefixes	YES
B. Children will omit pretonic syllables	YES
C. Children will omit determiners, auxiliaries and copular verbs	YES

Conclusion

I have assessed the predictions for the acquisition of Mayan verbal inflections derived from structural, comparative and metrical theories. The structuralist theory of Wexler (1998) fails to predict K'iche' children's use of the language's agreement morphology and existential verb. I used a comparative approach to derive predictions based on the frequency and relationships found in verbal inflection across the Mayan languages. This approach successfully predicts the children's early use of the status suffixes on verbs, but fails to predict the relative acquisition of the ergative and absolutive agreement affixes. Demuth's metrical theory (1994) is the most successful of these three models in predicting the course of language development in K'iche' It is the only model that can explain why children would break morphemes along syllable boundaries as well as combine separate inflections into a single unit of production. Key predictions from all three theories await the collection of acquisition data from other Mayan languages.

NOTES

* I have discussed the ideas in this paper with many people and have benefitted from their suggestions. I began this project in conjunction with the

comparative Mayan acquisition project that includes Penelope Brown, Lourdes de León and Barbara Pfeiler. I also had the privilege of discussing these ideas with Ken Hale. My proposals owe most of their original inspiration to Hale's work on K'iche' and other languages. I would also like to thank the participants at the University of Kansas Child Language Proseminar for their suggestions.

[1] I use the following abbreviations throughout the paper:

AgrS	subject agreement	AgrO	object agreement
Spec	specifier	T	Tense
COMP	completive aspect	NEG	negation
INCOMP	incompletive aspect	PROG	progressive
ASP	aspect	NOM	nominative agreement
Tran	transitive	ABS	absolutive agreement
1	first person singular	ERG	ergative agreement
2	second person singular	STATUS	the status suffix
3	third person singular	PERF	perfective
PL	plural	DIR	directional particle
FAM	familiar particle		

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